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SOME CHINESE FRESH-WATER FISHES[1]

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XXII.—*APHYOCYPRIS*, DESCRIBING A RACE FROM SHANTUNG

A series of the minnow, *Aphyocypris*, obtained at Tsinan, Shantung, in the summer of 1924, by a native collector under the direction of Mr. Clifford H. Pope, show certain differences from *A. chinensis* (a specimen of which has been examined from southern Hupeh) and seem to be a chubby deeper-bodied fish.

Aphyocypris chinensis shantung, new subspecies

DESCRIPTION OF TYPE.—No. 9671, American Museum of Natural History, from Tsinan, Shantung, summer of 1924.

Length to base of caudal, 46 mm. Depth in this length, 3.3; head, 3.5. Eye in head, 3.6; snout, 3.5; interorbital, 2.4; maxillary, 2.6; depth of peduncle, 2; its length, 1.4; width of body, 1.5; pectoral, 1.3; ventral, 1.8; longest dorsal ray, 1.5; anal ray, 1.7; lower caudal lobe, 1.3.

Dorsal rays, 9; anal, 9. Scales, 32, the lateral line on the four anterior only.

Head rather broad and blunt, the interorbital flattish, body not much compressed and belly gibbous, with a sharp, naked keel behind the ventrals. Mouth moderately

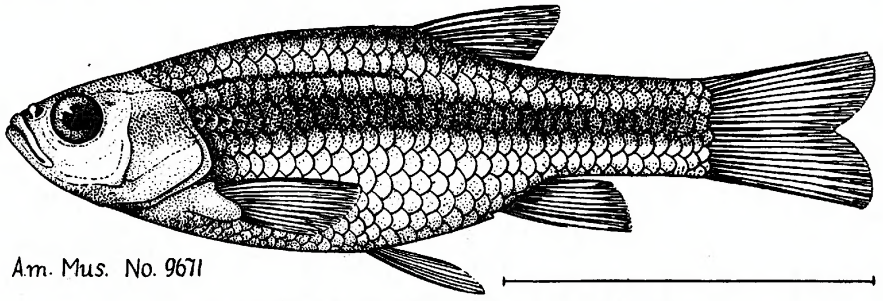

Fig. 1. *Aphyocypris chinensis shantung*, type.

oblique, maxillary to under front of eye, jaws equal or the lower very slightly projecting, no barbels. Gill-membranes joining one another and isthmus under posterior margin of eye, little, if at all, free. Dorsal and anal with soft rays only; dorsal origin equidistant from edge of preopercle and base of caudal, well behind ventral axil, the anal origin a little behind dorsal axil. Pectoral not quite reaching ventral, and

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[2]Drawings of the type specimens by Mrs. Helen Ziska.

ventral not reaching anal; caudal weakly forked, the lower lobe the longer. Scales with strong concentric and poorly marked radiating striæ, other fine parallel markings sometimes discernible.

Brownish above, paler below, a dark stripe along the midline of the back, and dark lateral band from eye to caudal, best marked posteriorly, about as broad as eye at the broadest.

Measurement of several other specimens, to show variation, are given in the following table.

Standard Length	Depth	Head	Eye	Dorsal	Anal	Scales
30 mm.	3.7	3.6	3.2	8	9	30
33	3.8	3.4	3.5	9	10	32
34	3.6	3.8	3.2	9	9	33
34	3.7	3.6	3.4	9	9	31
34	3.3	3.6	3.4	8	9	31
35	3.2	3.5	3.4	9	9	30
41	3.4	3.7	3.6	9	9	31
41	3.5	3.6	3.6	9	9	33
43	3.4	3.6	3.6	9	9	31

All of these have the lower jaw more or less appreciably projecting.

In the series to hand, which comprises 44 specimens, 2 are aberrant and may represent a distinct species, which it seems best not to describe without further similar material, or further material of what has been called *A. kikuchii* from Fukien (1928, Bull. Amer. Mus. Nat. Hist., LVIII, p. 25). They have only a slight posterior streak in place of the dark lengthwise band characteristic of *A. c. shantung*, lower jaw appreciably projecting, measurements (as in the above table) as follows:

29 mm.	3.1	3.5	3.5	9	9	29
30	3.1	3.5	3.4	9	9	30

Species and races of *Aphyocypris* in China may now be differentiated as follows:

1. Lateral line complete; scales 35; depth 4 (at 64 mm. standard length); jaws equal ..... *normalis.*
   Lateral line incomplete; scales 30 to 33 ..... 2.
2. Depth 4 (at 30 to 50 mm. length); scales 32; lower jaw scarcely projecting. *chinensis.*
   Depth 3.2 to 3.8 (at 30 to 45 mm. length); scales 30 to 33; lower jaw slightly projecting; dorsal origin equidistant between edge of preopercle and base of caudal; a pronounced dark lateral band ..... *shantung.*
   Depth 3.5 (at 60 mm. length); scales 30; lower jaw distinctly projecting; dorsal origin equidistant between front of eye and base of caudal ..... *kikuchii.*

XXIII.—GOBIES REFERABLE TO THE GENUS *MICROPERCOPS*

Some specimens of a small eleotrin goby from Shantung are very close to *Micropercops dabryi* (type of *Micropercops*) Fowler and Bean (1920, Proc. U. S. Nat. Mus., LVIII, p. 319, Fig. 2.) from Soochow, type only, and also close to the fish identified with *Eleotris swinhonis* Günther (Nichols, 1928, Bull. Amer. Mus. Nat. Hist., LVIII p. 54, Fig. 47), Yangtze Valley. Whereas *Micropercops* is described as having the sides of the head without scales, these specimens to hand have the opercle distinctly scaled and traces of scales visible on the preopercle, a character which is readily appreciable in specimens of 40 mm. or more, standard length, and was very likely overlooked in the single small specimen examined by Fowler and Bean. It is obviously correct to separate these little gobies from *Eleotris*. They are very variable, but probably distinct from *Micropercops dabryi*, though the most trenchant difference, fewer scales, is somewhat vitiated by the irregularity and crowding of the scales anteriorly, allowing of some latitude in the count. The following name is proposed for them.

Micropercops dabryi borealis, new subspecies

DESCRIPTION OF TYPE.—No. 9672, American Museum of Natural History, from Tsinan, Shantung, summer of 1924, a native collector under the direction of Clifford H. Pope.

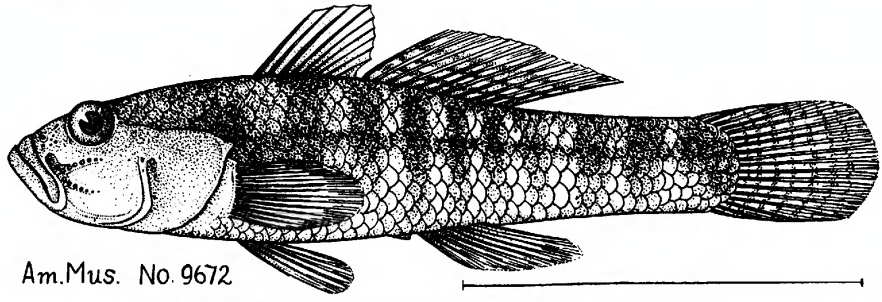

Fig. 2. *Mycropercops dabryi borealis*, type.

Length to base of caudal, 44 mm. Depth in this length, 4.4; head, 3.4. Eye in head, 4.5; snout, 3.5; interorbital, 4.5; maxillary, 3; greatest width of body (at the back of head), 1.6; length of peduncle (from dorsal axil), 1.3; its depth, 2.4; pectoral, 1.5; ventral, 1.9; longest dorsal spine, 2.5; longest dorsal ray, 2.1; longest anal ray, 2.3; caudal, 1.5.

Dorsal, IX–12; anal, 10. Scales, 37. Teeth in bands in jaws.

Body moderately compressed; nape not elevated. Lower jaw projecting; maxillary oblique, to under front margin of eye; interorbital slightly concave; gill-membranes separate, gill-cleft to under middle of eye; opercle and preopercle unarmed; various rows of pores on head. Ventrals separated by a distance about equal

to the base of each; dorsals narrowly separated, the posterior rays of the spinous dorsal when depressed overlapping the origin of the second dorsal; anal origin slightly behind, its axil slightly before that of second dorsal; caudal rounded. Scales ctenoid, irregular and somewhat crowded at the shoulder; just appreciable on preopercle, more distinct on opercle and nape, absent on interorbital snout and jaws.

Color somewhat darker above than below; a faint dark mark downward and slightly forward below the eye; sides with light and dark cross-bands, varying in width, spacing and intensity, the dark bands tending to be the broader. On the right side there are about 4 broad dark double bands split by relatively indistinct pale central stripes or streaks; on the left side about 8 dark bands are separated by somewhat narrower pale ones. Fins grayish; the second dorsal and caudal faintly barred, and the first dorsal dusky.

Comparative measurements of a few more specimens give an idea of the range of variation.

Standard Length	Depth	Head	Eye	Dorsal	Anal	Scales
32 mm.	3.8	3.4	4	VIII–11	9	33
33	4.2	3.4	4	IX–11	9	33
35	4	3.3	3.9	IX–11	9	34
39	4.1	3.5	3.7	VIII–12	9	35
40	4	3.5	4.5	VIII–12	9	34
40	3.9	3.4	4.6	IX–12	9	34
42	4.2	3.4	4.4	IX–11	9	35
48	3.6	3.6	4	IX–11	10	34

The two specimens of 40 mm. have the cross-bands restricted, suggesting the color-pattern figured for *M. dabryi* by Fowler and Bean. On the other hand, in the total series of some 100, I have found one otherwise aberrant specimen (of 43 mm.) with color-pattern more as figured for *M. swinhonis* by Nichols. It can not be matched or even satisfactorily linked to the others, although another specimen (of 41 mm.) seems somewhat intermediate. Same measurements as above for these two follow.

43 mm.	4	3.4	4.4	VII–12	10	31
41	4	3.4	3.8	VIII–11	9	31

It is quite likely that *dabryi* and *borealis* are only racially distinct from *swinhonis*, but we may with equal right assume that *swinhonis* (the 43 mm. specimen) occurs occasionally in the range of *borealis*. There is nothing unusual in finding forms in North and South China more closely related to one another than to their representative in the Yangtze Valley.